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The American Midland Naturalist

PUBLISHED BI-MONTHLY BY THE UNIVERSITY
OF NOTRE DAME, NOTRE DAME, INDIANA.

VOL. II. NOVEMBER, 1911. NO. 6.*

BOX-ELDERS, REAL AND SO-CALLED.

BY J. A. NIEUWLAND.

The first author who applied a generic name to the group of pinnately compound leaved maple-like trees, called Box-Elders, was John Ray in 1688.† He used the name *Negundo* for this distinctively American tree, called by Linnaeus *Acer Negundo*, the only species known until the beginning of the nineteenth century, when in 1818, Nuttall described more or less completely our middle western species, under the name *Negundo fraxinifolium.* Ray in giving the name seems to have been well aware that it had been used also by Garcia ab Horto and Acosta.‡ Other authors besides these who used the name *Negundo* before Ray's time, and after his time for that matter also, reserved the name for a plant from the East Indies and Malabar, now called *Vitex Negundo* Linn., 1753. There must have been some botanists during or before the time of Ray who misapplied the name to the common Box-elders, or Ray himself because of his insufficient knowledge of both this and Acosta's plant, judged or guessed the two to be the same. He describes the plant as follows:

"*Arbor exotica, foliis Fraxini instar, et serratis, Negundo perperam credita.*"§

From what follows there can be little doubt as to the identity of Ray's description with that of our common Box-elder.

"*Folia quatenus observavimus in planta juniore, duabus pinnarum conjugationibus constant, folio [partiali] impari extremam costam quibus pinnae adnexae sunt terminante. Pinnae singulae*

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† Raii, J. Historia Plantarum, p. 1798, (1688).

‡ Garcia ab Horto, Arom. et Simpl. ex Car. Clusio, 1593, (1st edition. 1567. Chapter III. DE NEGUNDO.

§ Raii, J. Historia Plantarum, p. 1798, (1688).

* November, 1911, pages 129 to 152.

Fraxinearum magnitudine aut ampliores, in acutos mucrones exeunt, dentibusque, marginibus et etiam mucronibus inordinatis obiter incisae sunt, summa praesertim parte. Folium impar quod dicimus, extremam costam terminans ab angusto principio sensim dilatatur ultro mediam partem. E. Virginia (ni fallor) delata fuit. An arbor haec Garciae et Acostae Negundo sit nescimus; folia ab eorum descriptionibus ablundunt."

No other parts of the plant beside leaves and stem seem to have been observed by Ray, and owing to his want of knowledge of both this plant and that of Garcia and Acosta, he appeared unwilling to create a new name under the circumstances.

Plukenet* had a more thorough knowledge of the plant, and in his Phytographia he gives three figures, one of a pinnate leaf with fine leaflets, a fertile flower branch, and also the fruit. His description and name show that he considered the tree as not generically distinct from the maples.

Acer maximum foliis trifidis et quinquefidis, Virginianum. Negundo perperam dicta arbor, Virginiana. Hort Beaum., Ray. Hist.

Hortus Beaumontianus,† probably written by Francis Kiggelaer, quotes the plant as introduced into Holland at least as early as 1690, and cites it as: "*Negundo perperam dicta, arbor Virginiana.*" Boerhaave‡ also considered it as a maple and he simply repeats the references of Ray, Kiggelaer and Plukenet.

In the *Hortus Cliffortianus,* Linnaeus§ has the plant in the genus *Acer,* and calls it "*Acer foliis compositis.*" In the Species Plantarum ‖ of 1753, he added to this the words "*floribus racemosis,*" and retains the trivial name Negundo, calling it *Acer Negundo.*

From these references it may be deduced that no valid name deserving to designate the genus was given to the Box-elders as a group before the year 1753. The term *Negundo* was applied by Ray in a mistaken sense, and was a homonym, having previously been used for *Vitex Negundo* on the basis of absolute priority.

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* Plukenet, L. Phytographia, Tab., 123, Figs. 4, 5. (1692).

† [Kiggelaer, F.] Horti Beaumontiani Catalogus Plantarum exoticarum, Hagae, (1690).

‡ Boerhaave, H. Index alter Plantarum, pt. 2, p. 234. (1727).

§ Linnaeus, C., Hortus Cliffortianus, p. 144, (1737).

‖ Linnaeus, C., Species Plantarum, p. 1056, (1753).

The earliest clearest designation of the plant as distinct from *Acer* which I have found was made in the third edition of Ludwig's *Definitiones Plantarum* by Boehmer,* though he omits important characters of the genus, and he refers the genus to Ray under the name *Negundo.* The description is as follows:

"1265. NEGUNDO Raj. Hist., 1798.

Ex gemma foliorum fila longa propendent, quorum extremo adhaeret calix tri-quadri-vel quinquefidus minimus: stamina quatuor, ad sex.

Flos pistillus incertus in distincta planta colocatus videtur.

Inter ACERIS *species Boerh. II.,* 234, *et Linn. Spec. Tom. II.,* 1052, *recensent, cum quo habitu quodam modo convenit.*"

This is the first place when the dioecious character of the trees was pointed out, a rather important mark in the classification of the plants.

Reallizing that the name *Negundo* had been preoccupied by another plant, Adanson†, who recognized the generic standing of the Box-elder, gave them the un-Latin name, *Rulac* or *Rulak,* and on the basis of absolute priority this is the earliest valid name, other objections notwithstanding. That the name is not Latin in origin need hardly stand in the way, for even in the best classical Latin of the Golden Age do we find uninflected words approved of by the masters of the language! It will be said that such words were introduced earlier and only accepted as used by the authors. There are, however, not a few other names now accepted into our botanical nomenclature that could hardly bear the strict scrutiny of the exacting name tinker, and they are accepted and new ones such are still being perpetrated. Rafinesque among others objected to the word *Negundo* as well as *Rulac,* and changed the name to *Negundium.*‡ At all events, the other name *Negundo* is withal as un-Latin as *Rulac,* and no preferences need be accorded one or the other for grammatical reasons only. Botanists therefore, who hold that no names are valid if published before 1753, should accept *Negundo* as the oldest published generic designation of the Box-elders. Those who believe that the above-mentioned date is not the beginning of scientific botany or nomenclature will reject *Negundo* as a homonym, as it was first applied to the plant called *Vitex Negundo*, and can not be applied to any other.

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* Ludwig, C. G. Definitiones Plantarum, 3rd ed., by G. R. Boehmer, p. 508. (1760).

† Adanson, M. Familles des Plantes, Vol. II. p. 383. (1763).

‡ Rafinesque, C. S., Medical Repository, Vol. V., 2nd Hexade, p. 352, also Devaux Journal de Botanique, vol. II., p. 170. (1808).

The Box-elders are exclusively North American in their range or origin, and until quite recently three or four species had been recognized. *Rulac Negundo* (Linn) A. S. Hitchcock, the type of the genus, *Rulac mexicana* (DC). from Mexico and Guatamala, *Rulac californica* (A. Gray), from California, and finally *Rulac texana* (Pax) Small, of the South by some botanists. Dr. N. L. Britton* in 1908 published two species from the west and especially Rocky Mountain Region. The two species were published under *Acer*, as *Acer interior*, and *Acer Kingi*. A number of botanists have accepted Nuttall's† species, *Negundo fraxinifolium* as a distinct plant from the eastern Atlantic coast tree. His name is however, untenable as Rafinesque published in 1808, a *Negundium fraxinifolium*, a species which like many of that author, is not sufficiently distinct from the type to deserve recognition, and is undoubtedly some form of the type. Nuttall's plant is beyoud doubt our middle western tree as his description plainly indicates. He does not refer to the eastern plant at all, though he must have known of it. Dr. Britton evidently included Nuttall's *Negundo fraxinifolium* in his *Acer interior*. The type of the latter is from the far west, a pubescent plant hitherto taken for *Rulac texana* (Pax) Small, and mistakenly so.

Concerning the identity of the plant called by authors *Rulac texana* and especially most plants labelled so in herbaria, much confusion has arisen. The real *Rulac texana*, or *Acer Negundo* var *texanum*‡ Pax, later called by Pax himself *Acer californicum* var *texanum*,§ is based on a certain pubescent form of our southern states the type or cotype sheet of which is in the United States National Herbarium, No. 18099, and is Lindheimer's No. 360 from Texas. The first publication of the plant as *Acer Negundo* var *texanum* Pax, 1885, included several broad leaved plants, Dandridge's from Tennessee and Rugel's from Florida, also in the U. S. National Herbarium which are only forms whose terminal leaflet is wider than long. All these have been examined by me in the U. S. National Herbarium, and, I think, can hardly be considered as even nearly related to Lindheimer's plant. Recognizing this Pax later segregated these first mentioned plants under the name *Acer Negundo* var *latifolium* Pax, 1889, l. c., and transferred Lindheimer's plant as a variety of *Acer californicum,* as *Acer californicum* var *texanum* Pax, 1889. The plant is really more closely related to the Californian tree than to the eastern tree of the Atlantic States and mostly east of the Alleghany Mountains. Even Lindheimer's type appears, however, hardly to deserve specific rank, and is in fact only a less densely pubescent *Rulac californicum.* It seems that when the Rocky Mountain plant began to become numerous in herbaria, this really unnamed and totally different species from any of the forgoing in some manner became confused with the Texan form or variety, and received the name *Rulac texana.*[*] Dr. Britton recognizing its difference and the confusion named it *Acer interior,* as I have already noted. In 1902 Pax[†] still recognized the varieties mentioned and in the same sense as last emended in 1889, but specimens of Britton's plant as well as Nuttall's are scattered throughout the numerous subvarieties and forms, of his monograph. Wesmael[§] like Pax had published many varieties and subspecies. Considering the great variability of the form of foliage of the plants, one not knowing that a single tree may have several kinds, shapes, not only at various ages, but at one and the same time, would readily be led to multiply, as has actually been done, the varieties and subspecies until we have a perfect maze of names. It is hardly safe to multiply such without an ecological study of the whole plants in their native haunts. I have found several of these so-called varieties on the same individual plant! Our midland Box-elder, the one Nuttall first described, has been found to have the terminal leaflet broader than long on seedlings and two year old plants early in the season, whereas the later leaves are the same as on the larger trees. I think I can be sure of this as I have examined the antecedants of the plants in question in our locality. I have also found that one of the principal characters on which Dr. Britton's *Acer interior* is based, *i. e.*, attenuation of the base of the fruit, varies at least in those plants of the species growing in the midland, so that various graduations are found from that of his type to that of the plant of the Atlantic States. As Dr. Britton states, however, of the western type "the features which while individually insignificant are collectively sufficient to warrant its recognition as a species," one may also say the same of the Midland Box-elder first described by Nuttall. The leaves are thick and firm and very veiny, drying greenish whereas those of *R. Negundo* dry brownish and are extremely thin and membraneous, the first bodies are perfectly glabrous in Nuttall's plant, minutely pubescent in the eastern type. The middle western plant has larger fruits usually in shape like those of *R. interior;* the leaves differ in being composed commonly of more than three leaflets even in fruiting branches. The sterile and growing shoots have usually 5 to 7 leaflets and very often 7 to 11. Leaves with eleven leaflets are bipinnate a character that did not escape Nuttall nearly a hundred years ago. The lower leaflets at the base and the terminal have again become compounded into pinnately trifoliolate members. Such leaves of 9 to 10 or 11 leaflets may be found on nearly any tree in our locality. The most obvious character of the midland plant is that of the pale bluish glaucous twigs, The bloom often persisting several seasons on old stems. As the plant was recognized by Nuttall, but under a name previously taken, I propose in his honor to call the plant, **Rulac Nuttallii.**

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* Britton, N. L. North American Trees, 1908, pp. 655, 656.

† Nuttall, I. Genera of N. Amer. Plants, p. 253. 1818.

‡ Pax in Engler's Botanisches Jahrbuch III., (1885), p. 327.

§ Pax in Engler's Bot. Jahrb. XI., (1889), p. 75.

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[*] See Small, J. K. Flora of the S. E. United States, 1903.

[†] Pax, in Engler & Prantl's Pflanzenreich. 1902.

[‡] Wesmael, A. Bull. Soc. Roy. Bot. Belg. 1890, XXIX. pp. 42, 43.

Bourgeau in 1859 published in a list the name *Negundo Fraxinus* for a plant from Saskatchewan. A plant or cotype of this is in the U. S. National herbarium, No. 292221. It is not very satisfactorily labelled, and the publication is not accompanied by any diagnosis; hence is a *nomen nudum.* The specimen supposed to be that of Bourgeau mentioned above is, however, undoubtedly the same plant as *R. interior* of Britton.

Some of these questions of synonymy and explanation for rejection of names referred to, might perhaps have been desired when Dr. Britton published *Acer interior.* As his work is, however, more or less popular in treatment, we can readily see why discussions of homonyms and synonyms and *nomina nuda* with other complicated matters of nomenclature, had better been entirely omitted by him. There are those, however, who are not quite able to see why Nuttall's name should have been omitted for either the Midland plant or, as Britton has it, the aggregate of Midland and Rocky Mountains plant which he called *Acer interior*,[*] not mentioning synonyms, and thus leaving readers to suppose that it is in every sense an entirely new plant, never previously referred to.

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* Bourgeau, Jour Linn. Soc. IV., (1859), 9.

The plant I shall call *Rulac Nuttallii* could hardly have had the same type as Britton's plant, as it is not likely that Nuttall as early as 1818 had penetrated as far as the mountains. We know, however, that in 1810 he made a journey west along the Ohio river almost solely to look up a new genus of plants typified by *Collinsia verna* published in 1817, and it may have been that he met with our midland *Rulac* on this trip west of the Alleghany mountains. At all events his description, incomplete as it certainly is, can only point to our midland Box-elder. He gives as the habitat of the tree: "Northwestward on the banks of the Missouri to the mountains?" I append here the synonymy of the Box-elders as fully as I have been able to ascertain it, or as is deemed necessary for the understanding of the various limitations of species already referred to.

RULAC Adanson, 1763[†].
Negundo John Ray, 1688[‡] per errorem.
Negundo Ludwig-Boehmer, 1760[§] haud *Negundo* Garciae et Acostae, 1567 et 1593,[||] vel veterum. Est enim *Vitex Negundo* Linn., 1753.
Negundium Rafinesque, 1808.[¶]
Acer Linnaei pro parte.[**]

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[*] The specific name *interior* would seem to have been ill chosen. The obvious meaning of the Latin word is "*internal*," "*inside of*." It would be difficult to imagine what a plant could be inside of and an internal or interior maple is an unthinkable thing. It was probably meant for ***mesochorum*** or midland, the Greek term being the only available one, as the Latin synonym *mediterraneum* would obviously refer to a European habitat.

[†] Adanson, M. Familles des Plantes, Vol. II., (1763), p. 283.

[‡] Raii, J. Historia Plantarum, (1688), p. 1798.

[§] Ludwig-Boehmer, Definitiones Plantarum, (1760), p. 508.

[||] Garciae ab Horto et Acostae, Arom. et Simplic. ex Car. Clusio, 1593. Cap. III. *De Negundo.*

[¶] Rafinesque, C. S. Med. Rep. Vol. V, 2nd Hexade (1808). p. 352, also Desvaux, Jour. de Bot., Vol. II. (1809). p. 170.

[**] Linnaei, C. Species Plantarum, (1737), p. 1056. Linnaei, C. Genera Plantarum (1737), p. 112, et (1754), p. 474.

Dioecious trees with opposite pinnately compound leaves, leaflets serrate and usually irregularly, to biserrate, and variously cleft. flowers precocious, apetalous: staminate in drooping umbels, pistillate in racemes or imperfect panicles: calyx small; disk none: stamens 4–6, long filamentary: fruit a samara like that of *Acer*: samara wings separately and tardily dehiscent.

1. RULAC NEGUNDO (Linn.) A. S. Hitchcock, 1894.[*]
Negundo aceroides Moench, 1794.[†]
Negundo virginianum Medik. 1800,[‡] to include *Negundo trifoliatum* Raf.,[§] and *Negundo lobatum* Raf.,[||]
Negundium fraxinifolium Raf., 1808.[¶]
Negundo fraxinifolium D. C., 1824.[**]
Negundo fraxineum Steudel, 1841,[††] nomen tantum.
Negundo Negundo (Linn.) Karsten, 1880–83.[‡‡]

Small or middle-sized dioecious tree, with *green glabrous twigs* and pinnately compound leaves: *leaflets* 3–7 *usually* 3–5 on flowering branches, and 5–7 on sterile and growing shoots: *leaflets thin membranous* glabrous at maturity with a few scattered hairs especially on the veins beneath; leaves drying to an olive brown: terminal leaflet and the two basal often 3-lobed or cleft, (the latter never both completely divided into three leaflets) all variously roughly and irregularly serrate or dentate, middle leaflets rounded or subcordate, the others so when lobed, otherwise cuneate or narrowed at the base; *secondary veins not prominent*, rather inconspicuous; *petioles green, glabrous.* Flowering racemes 2, opposite, near the end of the twigs of the preceding year's growth on short side branches 1-2.5 cm. long, *peduncles* 3-5 *cm. long* with 1-2 opposite small simple or ternate leaves, usually entire: fruiting racemes about 2 on a twig; *samaras attenuate at the base*, wings usually widely divergent forming an obtuse or *right angle on the outer margins: seed body minutely pubescent.*

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[*] Hitchcock, A. S. Spring Flora of Manhattan, (1894), 6.
[†] Moench, C. Meth. Pl. (1794), p. 334.
[‡] Medikus. Pfl. Anat. (1800), p. 439.
[§] l. c.
[||] l. c.
[¶] l. c.
[**] DeCandolle, A. P. Prodromus, Vol. I., (1824), p. 546.
[††] Steudel, E. T. Nomenclator Botanicus. Vol. II., (1841), p. 188.
[‡‡] Karsten. Deutschl. Fl. (1880–1883). p. 596.

This tree is a native of the Eastern United States along the coast from Maine or farther south as far south as Florida. It extends inland as far as Kentucky and Tennessee. Quite typical specimens I have seen and collected around Washington, Philadelphia, in the Shenandoah valley, Virginia, and in West Virginia and Maryland. It grows wild along the Potomac River. It is scarcely found in typical appearance in Indiana, though some plants growing here have been observed in cultivation.

The variety of Pax, *Acer* or *Rulac Negundo latifolia* is based on several plants segregated from the variety *texana* or *Acer Negundo* var *texanum* Pax. It has broadly eleptical leaflets, the terminal leaflet wider than long, as its principal character. I have specimens of typical *Rulac Negundo* that exhibit such broad leaflets on younger shoots of the same plant. I have found such broad leaflets also in seedlings, or the early spring trifoliolate leaves of young plants of *Rulac Nuttallii.*

This character seems then hardly a distinctive one, and is found in young or first leaves of the season and often on young two year old trees especially, these leaves developed early from the bud.

The variety *latifolium* is based principally on Tennessee and Kentucky specimens, Dandridge's, Hooker's and Rugel's, both in the U. S. National Herbarium, where I have examined them.

2. **Rulac Nuttallii** Nwd., nomen novum.
Negundo or *Acer fraxinifolium* Nuttall, 1818,* not
Negundium fraxinifolium Raf., 1808.†

Small or middle sized tree, with *white* or *bluish glaucous twigs* whose bark is usually somewhat thicker than in the preceding; leaves pinnately or *incompletely bipinnately* compound; *leaflets usually smaller* than those of the preceding, 3-11, usually 3-7 *on fruiting branches and* 5-11 *on sterile shoots, leaflets rather thick* and *veiny*, dark-green above and paler beneath, glabrous on both sides except on the veins of the lower surface, with rather densely pubescent tufts in the angles of the principal veins; leaflets variously and irregularly toothed and cleft especially the terminal and basal lateral which are often again trifoliolate; secondary veins prominent *and mesophyl pale beneath; flowering and fruiting racemes usually* 4 *on a twig, opposite in pairs,* with numerous samaras, and at the ends of the twigs of preceding years growth; racemes on short side branches 1 *cm or less in length,* with or without reduced simple or ternate leaves; peduncles 2-2.5 cm. long: samaras densely clustered, in appearance usually smaller: *samara wings joined usually at an acute angle at the base, and not at all, or not much attenuated; fruit body glabrous.*

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* l. c.

† l. c.

From *Rulac interior* it is easily distinguished by its glaucous white twigs, those of the latter being minutely and retrorsely or spreading tomentulose. The leaves of *R. interior* are almost invariably trifoliolate and the three leaflets give the whole leaves a characteristic regular appearance wanting in the eastern and middle western plants.

This seems to be the native midland Box-elder and extends from the western slopes of the Appalachian Mountain system to the foot-hills of the Rocky Mountains and north of the Ohio River and Missouri. The tree seems to be more hardy than the eastern one, and has been found more often in cultivation.

Specimens in the United States Herbarium show it to be found in the Eastern states, New York, California, Mexico, and cultivated in European gardens and parks. The eastern species seems almost totally absent from the Middle West.

Rather typical plants are present in my herbarium as numbers 675, 2165, 2174, 2175, 2168, 2169, from Notre Dame and vicinity. Mr. Deam's collection from various parts of the State of Indiana contain some good examples. Some have rather attenuated fruit bases. The specimens in the U. S. National Herbarium as also in the New York Botanical Garden Herbarium are too numerous to give individual mention and reference, though I have a record of all to date. One specimen in Mr. Deam's collection from Missouri has extremely narrowly angled fruit bases, and large wings that overlap each other.

Rulac Nuttallii is readily distinguished by its thick irregularly dentate leaves, and glaucous twigs and petioles. The wings of *R. interior* are minutely tomentulose and the leaves though variously dentate are trifoliolate and the whole leaf has a very symmetrical appearance, taking the leaflets together. This is lacking in the irregularly leaved midland specimens, one-half of the terminal leaflet is hardly as symmetrical as the other, nor do the basal ones help in the symmetry of outline of the whole. The leaves of *R. Nuttallii* have oftener 5-11 leaflets than any other species. Seven leaflets are as rare in the eastern part as five are in the Rocky Mountain plant, but even 7-11 leaflets are far from rare in the midland Box-elder. *R. Negundo* has pubescent fruit bodies, those of *R. Nuttalli* are perfectly glabrous at maturity. The fruit is usually not or but little attenuate at the base. Leaves of the eastern plant dry to an olive brown, the veiny thick leaves of the midland plant dry greenish, the mesophyl on the lower surface of *R. Nuttallii* is pale glâucous and even secondary network of veins very prominent. I have never seen in the other species a near approach to the bipinnate leaf of our midland plant. Entire branches often are found that have never fewer than eight to eleven leaflets to the leaves.

3. RULAC INTERIOR (Britton).
Acer interior Britton, 1908.*
Rulac texana Small, 1903†, Secundum descriptionem, vel saltem in parte.
Negundo Fraxinus Bourg., 1859‡ probabiliter, sed nomen nudum.

There seems to be no need of repeating Dr. Britton's characters. The tree is together with *Rulac Nuttallii* one of the commonest of specimens in our herbaria, and together with it more numerously represented than all the others taken together.

4. RULAC KINGII (Britton)
Acer Kingi Britton, 1908.§

5. RULAC CALIFORNICA (Torrey & Gray).
Acer californicum (Torrey and Gray) Dietrich.||
Negundo californicum Torrey and Gray. 1838, 1840.¶

Inclusive of *Rulac californica* var *texana* Pax *Rulac texana* (Pax) Small. This plant is only a less densely pubescent form of *R. californica* and can hardly be considered as a variety, since even *R. californica* varies more in other ways.

Native of California along the coast of the Pacific Ocean, especially in the southern part of the State extending into Mexico.

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* Britton, N. L. North American Trees, (1908), p. 655.
† l. c. ‡ l.cl c. § l. c. p. 656.
|| Dietrich, D. Syn. II., 1283.
¶ Torrey & Gray, Fl. N. Am. I., (1838-1840)., p. 250.

6. RULAC MEXICANA (DC.)
Negundo mexicanum DC., 1824*
Acer mexicanum. (D. C.) Pax, 1886, not *Acer mexicanum* A. Gray, 1861.

This species differs rather notably from all the foregoing by its regularly sharply serrulate oval or ovate leaflets. These are always trifoliolate and densely silky tomentose beneath.

It is native of Southern Mexico, and specimens found in Guatemala are typical in every way except the larger size of the leaflets.

It seems that the Asiatic group of pinnately trifoliate maple-like trees have been confounded with the real American Box-elders. They are, however, only like them superficially and in appearance. They differ as a matter of fact as much from the members of the genus *Rulac* as they do from *Acer* itself. The leaves are always pinnately trifoliolate but they are andro-monoecious and the disk is not obsolete as that of *Rulac*. The number of stamens differs; there are differences in the inflorescence, which is terminal, and the flowers are complete. The group is at least as deserving, if not more so, of generic rank than *Rulac* itself, and I propose for it the name **Crula.**

Crula nov. gen.

Arbores andro-monoicae cum foliis pinnatis trifoliolatis: discus bene evolutus et crassus extrastaminalis; gemmae perulae interiores elongatae: stamina 8 saepissime elongata medio disco inserta vel cum disco extra staminibus; petala evoluta, sepala libera; foliola minime lobata; inflorescentia in ramulis terminalibus foliosis insita; styli usque ad basim distincti, prope ad alas bene divaricati: flores praecoces, fertiles spicati, vel racemosi, vel corymbosi vel pauci umbellati.

Per Asiam Orientalem dispersa, Chinam, Coream, Japoniam et Mandschuriam.

The plants differ from *Rulac* in being andro-monoecious and the flowers in terminal clusters. The leaves are always pinnately trifoliolate, never deeply lobed, usually thin serrate or entire. The stamens are 8-10, and the flowers complete with a thick prominent extrastaminal disk. The stamens in *Rulac* are 4-6, the flowers apetalous and always diclinous, in different plants. The name is an anagram of *Rulac*. The following are known species, all oriental Asiatic. The genus may be considered somewhat closely related to *Rulac* and in the natural system would come between *Acer* and *Rulac* as the latter stands between the new genus and *Dipteronia* Oliv., 1896.

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* DC. Prodromus. l. c.

1. CRULA CISSIFOLIA (Sieb. & Zucc.) Nwd.
Acer cissifolium (Sieb. & Zucc.) C. Kock, 1864.
Negundo cissifolium Sieb. & Zucc., 1846.

The plant is represented in the U. S. National Herbarium by No. 18106, collected by Tschonoski in Japan. It is a fertile flowering and fruiting specimen; some samaras having three wings. Also No. 136663 from Nikko (Mitsude-Kaide), May 9, 1879, collected by Matsumura. It has only stamen bearing flowers. No. 210532 from Nanokawa, Tosa, July 18, 1892, has mature fruit. No. 640126 was collected from the Agricultural Department Grounds, Washington, D. C. where it is cultivated. The branch is sterile.

2. CRULA SUTCHUENSIS (Franch) Nwd.
Acer sutchuense Franchi, 1894.

3. CRULA TRIFLORA (Komarow) Nwd.
Acer triflorum Komarow, 1901.

4. CRULA MANDSCHURICA (Maxim.) Nwd.
Acer mandschuricum Maxim., 1868.

U. S. Nat. Herb. Specimen No. 18107 from Northeastern Manchuria, 1860, fruit in umbels. N. Y. Bot. Gard. Herb. has a specimen, Wilson's No. 1883.

5. CRULA NIKOENSIS (Maxim.) Nwd.
Acer nikoense Maxim., 1868.

U. S. Nat. Herb. Specimen No. 18084. Kitch's collected by C. S. Sargent, Oct. 17, 1892, at Nikko, Japan, has mature fruit. No. 18083 is a sterile specimen of the same. Tschonoski's specimen No. 18030, U. S. Nat. Herb. has flowers and mature fruit, developed and undeveloped leaves. No. 18031 of the same with mature fruit and leaves and perfect flowers, collected at Nagasaki, Japan, in 1863, and tentatively labelled "Negundo?"

Also No. 596579 collected by E. H. Wilson for Veitch & Sons in Western Hupeh, C. China. The flowers have ten stamens and are in corymbs. Wilson's No. 639 in the N. Y. Bot. Garden Herb., which I have not determined for want of time, also seems to belong to this group.

6. CRULA GRISEA (Franch) Nwd.
Acer nikoense var *griseum* Franch, 1894.
Acer griseum (Franch) Pax, 1902.

7. CRULA HENRYI (Pax) Nwd.
Acer Henryi Pax, 1896.

Represented in the U. S. Nat. Herb. by No. 801241,collected by A. Henry (No. 5644) in Scech'uan, Central China, 1885-88. This is evidently one of the co-type specimens, and has young and immature fruit. Henry's No. 5644 B, another cotype from the province of Hupeh has mature fruit. Also No. 596485 from Pat'ung, W. China collected by E. H. Wilson has mature fruit and fertile flowers just out of bloom. In the New York Botanical Garden, the plant is represented by Wilson's No. 548.

DEPARTMENT OF BOTANY,
University of Notre Dame

VI.—NEW PLANTS FROM NORTH DAKOTA.

BY J. LUNELL.

Amarella Gurliae sp. nov.

Planta annua. Caulis simplex vel de basi ramosus, teres vel angulatus, colore purpureo, 1–2 dm. altus; internodi vel longiores vel breviores vel aequales foliis. Folia marginibus scabris non vestita, basilaria spatulata, caulina lanceolato-linearia, in caule inferiore late lanceolata et paulo falcata. Flores in axillis foliorum aut solitarii aut per ramos breves folio non longiores conspersi, ramo singulo 2 usque 5 flores gerente, quorum proximi pedicellos 5–10 mm. longos, remoti pedicellos 2 vel 3 mm. longos habent. Tubus calycis 2 mm. longus, lobi ejus 4 vel 5, inaequales, 3–4